

CLAIMS

1. A switching power supply comprising:  
a plurality of capacitors for dividing the voltage of a DC power supply,  
a plurality of DC-DC converters, the input sides of which respectively receive the voltages divided by said plurality of capacitors and the output sides of which are connected in parallel,  
output voltage error detecting means for detecting the output voltage of said DC-DC converters and for generating an error signal between the output voltage and a reference voltage,  
input voltage deviation detecting means for detecting voltages corresponding to the input voltages of said DC-DC converters and for generating the deviation signal of the input voltages of said DC-DC converters, and  
control means, receiving the error signal from said output voltage error detecting means and the deviation signal from said input voltage deviation detecting means, for drive-controlling said DC-DC converters.

2. A switching power supply in accordance with claim 1, wherein said input voltage deviation detecting means comprises voltage detecting means for

detecting the voltages applied to predetermined portions of said DC-DC converters and voltage deviation detecting means for detecting the deviation of the input voltages of said DC-DC converters detected by said voltage detecting means, and

said control means, receiving the deviation signal of said input voltage deviation detecting means and the error signal of said output voltage error detecting means, for correcting drive signals for ON/OFF operating switching means so that the input voltages to said DC-DC converters are balanced and so that the deviation of said input voltage deviation detecting means becomes zero.

3. A switching power supply in accordance with claim 1, comprising N (N: an integer of 3 or more) capacitors connected in series across the input terminals, across which said DC power supply is connected, and N DC-DC converters respectively connected to said capacitors, wherein

said input voltage deviation detecting means detects voltages corresponding to the input voltages of said DC-DC converters, calculates the average value thereof and generates a deviation between said average value and the voltages corresponding to the input voltages of said DC-DC converters, and

said control means, receiving the deviation signal of said input voltage deviation detecting means and the error signal of said output voltage error detecting means, for correcting drive signals for ON/OFF operating said switching means so that the input voltages to said DC-DC converters are balanced and so that the deviation of said input voltage deviation detecting means becomes zero.

4. A switching power supply in accordance with any one of claims 1 to 3, wherein said input voltage deviation detecting means detects voltages induced in auxiliary windings added to a transformer at the time when switching means are in the ON state.

5. A switching power supply in accordance with any one of claims 1 to 3, wherein said input voltage deviation detecting means detects voltages induced in the secondary windings of a transformer.

6. A switching power supply in accordance with any one of claims 1 to 3, wherein said input voltage deviation detecting means detects voltages applied to output choke coils.

7. A switching power supply in accordance

with any one of claims 1 to 3, wherein said control means comprises reference triangular signal generating means for generating a reference triangular signal and voltage comparing means for comparing said reference triangular signal with the error signal of said output voltage error detecting means, and the deviation signal of said input voltage deviation detecting means is added to the reference triangular signal or the error signal of an error amplifier and compared in voltage.

8. A switching power supply in accordance with any one of claims 1 to 3, wherein said DC-DC converter has at least switching means, an isolating transformer, rectifying means, a smoothing capacitor and an output choke coil, and said rectifying means comprises diodes.

9. A switching power supply in accordance with any one of claims 1 to 3, wherein said DC-DC converter is formed of one of a forward-type converter, a flyback-type converter, a half-bridge-type converter and a full-bridge-type converter.

10. A switching power supply in accordance with any one of claims 1 to 3, configured to supply

electric power to semiconductor devices.